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                     Welcome to STN International
NEWS
                 Web Page URLs for STN Seminar Schedule - N. America
NEWS
                 "Ask CAS" for self-help around the clock
NEWS 3
         Jun 03
                 New e-mail delivery for search results now available
         Aug 08
NEWS 4
                 PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 5
         Aug 19
                 Aquatic Toxicity Information Retrieval (AQUIRE)
                 now available on STN
NEWS
         Aug 26
                 Sequence searching in REGISTRY enhanced
NEWS
      7
         Sep 03
                 JAPIO has been reloaded and enhanced
NEWS 8
         Sep 16
                 Experimental properties added to the REGISTRY file
NEWS 9
         Sep 16
                 CA Section Thesaurus available in CAPLUS and CA
NEWS 10 Oct 01
                 CASREACT Enriched with Reactions from 1907 to 1985
NEWS 11 Oct 24
                 BEILSTEIN adds new search fields
NEWS 12 Oct 24
                 Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 13 Nov 18
                 DKILIT has been renamed APOLLIT
NEWS 14 Nov 25
                 More calculated properties added to REGISTRY
NEWS 15 Dec 04
                 CSA files on STN
NEWS 16 Dec 17
                 PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS 17 Dec 17
                 TOXCENTER enhanced with additional content
NEWS 18 Dec 17
                 Adis Clinical Trials Insight now available on STN
NEWS 19
         Jan 29
                 Simultaneous left and right truncation added to COMPENDEX,
                 ENERGY, INSPEC
NEWS 20 Feb 13
                 CANCERLIT is no longer being updated
NEWS 21 Feb 24 METADEX enhancements
NEWS 22 Feb 24
                 PCTGEN now available on STN
NEWS 23 Feb 24
                 TEMA now available on STN
NEWS 24 Feb 26 NTIS now allows simultaneous left and right truncation
NEWS 25 Feb 26 PCTFULL now contains images
NEWS 26 Mar 04 SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 27 Mar 20 EVENTLINE will be removed from STN
NEWS 28 Mar 24 PATDPAFULL now available on STN
NEWS 29 Mar 24
                 Additional information for trade-named substances without
                 structures available in REGISTRY
NEWS 30 Apr 11
                 Display formats in DGENE enhanced
         Apr 14
                 MEDLINE Reload
NEWS 31
NEWS 32 Apr 17
                 Polymer searching in REGISTRY enhanced
NEWS 33
         Jun 13
                 Indexing from 1947 to 1956 added to records in CA/CAPLUS
NEWS 34 Apr 21
                 New current-awareness alert (SDI) frequency in
                 WPIDS/WPINDEX/WPIX
NEWS 35
         Apr 28
                 RDISCLOSURE now available on STN
                 Pharmacokinetic information and systematic chemical names
NEWS 36
         May 05
                 added to PHAR
NEWS 37
         May 15
                 MEDLINE file segment of TOXCENTER reloaded
         May 15
NEWS 38
                 Supporter information for ENCOMPPAT and ENCOMPLIT updated
NEWS 39
         May 16
                 CHEMREACT will be removed from STN
NEWS 40
        May 19
                 Simultaneous left and right truncation added to WSCA
NEWS 41 May 19 RAPRA enhanced with new search field, simultaneous left and
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right truncation NEWS 42 Jun 06 Simultaneous left and right truncation added to CBNB NEWS 43 Jun 06 PASCAL enhanced with additional data NEWS 44 Jun 20 2003 edition of the FSTA Thesaurus is now available NEWS 45 Jun 25 HSDB has been reloaded NEWS EXPRESS April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003 NEWS HOURS STN Operating Hours Plus Help Desk Availability General Internet Information NEWS INTER NEWS LOGIN Welcome Banner and News Items NEWS PHONE Direct Dial and Telecommunication Network Access to STN NEWS WWW CAS World Wide Web Site (general information) Enter NEWS followed by the item number or name to see news on that specific topic. All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties. FILE 'HOME' ENTERED AT 08:39:19 ON 30 JUN 2003 => file uspatfull COST IN U.S. DOLLARS SINCE FILE TOTAL ENTRY SESSION FULL ESTIMATED COST 0.21 0.21 FILE 'USPATFULL' ENTERED AT 08:39:37 ON 30 JUN 2003 CA INDEXING COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY (ACS) FILE COVERS 1971 TO PATENT PUBLICATION DATE: 26 Jun 2003 (20030626/PD) FILE LAST UPDATED: 26 Jun 2003 (20030626/ED) HIGHEST GRANTED PATENT NUMBER: US6584613 HIGHEST APPLICATION PUBLICATION NUMBER: US2003121088 CA INDEXING IS CURRENT THROUGH 26 Jun 2003 (20030626/UPCA) ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 26 Jun 2003 (20030626/PD) REVISED CLASS FIELDS (/NCL) LAST RELOADED: Feb 2003 USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Feb 2003 >>> USPAT2 is now available. USPATFULL contains full text of the <<< >>> original, i.e., the earliest published granted patents or <<< >>> applications. USPAT2 contains full text of the latest US <<< publications, starting in 2001, for the inventions covered in <<< USPATFULL. A USPATFULL record contains not only the original <<< >>> published document but also a list of any subsequent <<< publications. The publication number, patent kind code, and publication date for all the US publications for an invention are displayed in the PI (Patent Information) field of USPATFULL records and may be searched in standard search fields, e.g., /PN, <<< /PK, etc. >>> USPATFULL and USPAT2 can be accessed and searched together <<< through the new cluster USPATALL. Type FILE USPATALL to >>> <<< >>> enter this cluster. <<<

>>> Use USPATALL when searching terms such as patent assignees, .

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>>> classifications, or claims, that may potentially change from
>>> the earliest to the latest publication.
                                                                         <<<
This file contains CAS Registry Numbers for easy and accurate
substance identification.
=> s us5169631/pn
             1 US5169631/PN
=> s antimicrobial?
        26491 ANTIMICROBIAL?
=> s l1 and l2
            1 L1 AND L2
=> s bacteria?
       131652 BACTERIA?
=> s 13 and 14
            1 L3 AND L4
L5
=> s salicylic acid?
        24525 SALICYLIC
        685423 ACID?
        19470 SALICYLIC ACID?
L6
                 (SALICYLIC(W) ACID?)
=> s 15 and 16
1.7
             0 L5 AND L6
=> s amide?
      154077 AMIDE?
L8
=> s 18 and 15
1.9
             0 L8 AND L5
=> s salicylic acid-n-octyl amide? or salicylic acid-n-decyl amide?
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        657972 ACID
       1108294 N
         72929 OCTYL
        154077 AMIDE?
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         24525 SALICYLIC
        657972 ACID
       1108294 N
         39695 DECYL
        154077 AMIDE?
            11 SALICYLIC ACID-N-DECYL AMIDE?
                  (SALICYLIC (W) ACID (W) N (W) DECYL (W) AMIDE?)
L10
            11 SALICYLIC ACID-N-OCTYL AMIDE? OR SALICYLIC ACID-N-DECYL AMIDE?
=> d his
     (FILE 'HOME' ENTERED AT 08:39:19 ON 30 JUN 2003)
     FILE 'USPATFULL' ENTERED AT 08:39:37 ON 30 JUN 2003
              1 S US5169631/PN
L1
          26491 S ANTIMICROBIAL?
L2
              1 S L1 AND L2
L3
L4
         131652 S BACTERIA?
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10/018,274
              1 S L3 AND L4
L5
L6
          19470 S SALICYLIC ACID?
L7
              0 S L5 AND L6
         154077 S AMIDE?
L8
              0 S L8 AND L5
L9
             11 S SALICYLIC ACID-N-OCTYL AMIDE? OR SALICYLIC ACID-N-DECYL AMIDE
L10
\Rightarrow s 110 and 12
             1 L10 AND L2
=> s 2,4,4-trichloro-2-hydroxydiphenyl ether?
       3497342 2
       3444435 4
       3444435 4
         14384 TRICHLORO
       3497342 2
          1564 HYDROXYDIPHENYL
        343021 ETHER?
           384 2,4,4-TRICHLORO-2-HYDROXYDIPHENYL ETHER?
L12
                  (2 (W) 4 (W) 4 (W) TRICHLORO (W) 2 (W) HYDROXYDIPHENYL (W) ETHER?)
=> s l11 and l12
             0 L11 AND L12
L13
=> s 12 and 112
           198 L2 AND L12
L14
=> s salicylic acid(p)amide?
         24525 SALICYLIC
        657972 ACID
         18829 SALICYLIC ACID
                  (SALICYLIC(W) ACID)
        154077 AMIDE?
           705 SALICYLIC ACID(P) AMIDE?
L15
=> s 115 and 114
             1 L15 AND L14
L16
=> d ibib abs
L16 ANSWER 1 OF 1 USPATFULL
ACCESSION NUMBER:
                         2003:86876 USPATFULL
TITLE:
                         Hepatitis a viricide
INVENTOR(S):
                         Rheinbaben, Friedrich Von, Monheim, GERMANY, FEDERAL
                         REPUBLIC OF
                         Biering, Holger, Grevenbroich, GERMANY, FEDERAL
                         REPUBLIC OF
                         Bensemir, Klaus-Peter, Langenfeld, GERMANY, FEDERAL
                         REPUBLIC OF
                         Glaeser, Sabine, Dusseldorf, GERMANY, FEDERAL REPUBLIC
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	HOMBER	KLIID	DAIL	
PATENT INFORMATION: APPLICATION INFO.:	US 2003060484 US 2002-168442 WO 2000-EP12688	A1	20030327 20020918 20001214	(10
	NUMBER	DATE		
PRIORITY INFORMATION: DOCUMENT TYPE:	DE 1999-19962353 Utility	19991	.223	

FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: MERCHANT & GOULD PC, P.O. BOX 2903, MINNEAPOLIS, MN,

55402-0903

NUMBER OF CLAIMS: 10 EXEMPLARY CLAIM: 1 LINE COUNT: 264

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to agents which combat the hepatitus A virus, containing only minimal amounts of chlorine-containing and/or chlorine cleaving active ingredients, or none of said substances. The inventions also relates to the use of these agents and to a method for their

production.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

L1

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FILE 'USPATFULL' ENTERED AT 08:39:37 ON 30 JUN 2003

1 S US5169631/PN

L2 26491 S ANTIMICROBIAL?

L3 1 S L1 AND L2

L4 131652 S BACTERIA?

L5 1 S L3 AND L4

L6 19470 S SALICYLIC ACID?

L7 0 S L5 AND L6

L8 154077 S AMIDE?

L9 0 S L8 AND L5

L10 11 S SALICYLIC ACID-N-OCTYL AMIDE? OR SALICYLIC ACID-N-DECYL AMIDE

L11 1 S L10 AND L2

L12 384 S 2,4,4-TRICHLORO-2-HYDROXYDIPHENYL ETHER?

L13 0 S L11 AND L12

L14 198 S L2 AND L12

L15 705 S SALICYLIC ACID(P)AMIDE?

L16 1 S L15 AND L14

=> s 14 and 112

L17 213 L4 AND L12

=> s 117 and 12

L18 154 L17 AND L2

=> s ?hydroxydiphenyl ether?

6139 ?HYDROXYDIPHENYL

343021 ETHER?

L19 1988 ?HYDROXYDIPHENYL ETHER?

(?HYDROXYDIPHENYL(W)ETHER?)

=> s 119 and 110

L20 0 L19 AND L10

=> s 119 and 12

L21 283 L19 AND L2

=> s 121 and 14

L22 221 L21 AND L4

=> s 115 and 122

L23 5 L15 AND L22

10/018,274

=> d 1-5 ibib abs

L23 ANSWER 1 OF 5 USPATFULL

ACCESSION NUMBER: 2003:109200 USPATFULL TITLE: Antimicrobial compound

INVENTOR(S): Mondello, Frank John, Niskayuna, NY, United States May, Ralph Joseph, Schenectady, NY, United States

PATENT ASSIGNEE(S): General Electric Company, Niskayuna, NY, United States

(U.S. corporation)

NUMBER KIND DATE

PATENT INFORMATION: US 6552214 B1 20030422 APPLICATION INFO.: US 2000-564232 20000504 (9)

DOCUMENT TYPE: Utility FILE SEGMENT: GRANTED

PRIMARY EXAMINER: Shaver, Paul F.

LEGAL REPRESENTATIVE: Caruso, Andrew J., Johnson, Noreen C.

NUMBER OF CLAIMS: 28 EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)

LINE COUNT: 387

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A compound comprises a blocked halogenated hydroxydiphenyl

ether of the formula: ##STR1##

where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3 is hydrogen, chlorine or bromine, X.sub.4 is chlorine, bromine, alkyl having 1 to 3 carbon atoms, --CHO, --CN or --NH.sub.2, X.sub.5 is chlorine, bromine, methyl, trichloromethyl, --CHO, --CN or --NH.sub.2, n is 1 or 2, and R is an ether linkage inhibiting group.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L23 ANSWER 2 OF 5 USPATFULL

ACCESSION NUMBER: 2003:86876 USPATFULL TITLE: Hepatitis a viricide

INVENTOR(S): Rheinbaben, Friedrich Von, Monheim, GERMANY, FEDERAL

REPUBLIC OF

Biering, Holger, Grevenbroich, GERMANY, FEDERAL

REPUBLIC OF

Bensemir, Klaus-Peter, Langenfeld, GERMANY, FEDERAL

REPUBLIC OF

Glaeser, Sabine, Dusseldorf, GERMANY, FEDERAL REPUBLIC

OF

NUMBER DATE
PRIORITY INFORMATION: DE 1999-19962353 19991223

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: MERCHANT & GOULD PC, P.O. BOX 2903, MINNEAPOLIS, MN,

55402-0903

NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
LINE COUNT: 264

10/018,274

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

The invention relates to agents which combat the hepatitus A virus, containing only minimal amounts of chlorine-containing and/or chlorine cleaving active ingredients, or none of said substances. The inventions also relates to the use of these agents and to a method for their production.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L23 ANSWER 3 OF 5 USPATFULL

75:46481 USPATFULL ACCESSION NUMBER:

TITLE: INVENTOR(S): Halogenated hydroxy-diphenyl ethers

Model, Ernst, Basel, Switzerland

Bindler, Jakob, Riehen, Switzerland

PATENT ASSIGNEE(S):

Ciba-Geigy Corporation, Ardsley, NY, United States

(U.S. corporation)

NUMBER KIND DATE \_\_\_\_\_\_ US 3904696 US 1972-319267 PATENT INFORMATION: 19750909 APPLICATION INFO.: 19721229 (5)

DISCLAIMER DATE:

19870413

RELATED APPLN. INFO.:

Continuation of Ser. No. US 1970-11894, filed on 16 Feb

1970, now Defensive Publication No. which is a

continuation-in-part of Ser. No. US 1966-570742, filed on 8 Aug 1966, now Defensive Publication No. which is a continuation-in-part of Ser. No. US 1964-345080, filed

on 17 Feb 1964, now abandoned

DOCUMENT TYPE: FILE SEGMENT:

Utility Granted

PRIMARY EXAMINER:

Helfin, Bernard

NUMBER OF CLAIMS: EXEMPLARY CLAIM:

LINE COUNT:

584

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Halogen-2-hydroxy-diphenyl ethers are useful in bactericidal compositions and method in the protection of organic materials.

Illustrative compounds are 2',4,4',5-tetrachloro-2-

hydroxydiphenyl ether, 4,4',5-trichloro-2-

hydroxydiphenyl ether, 2',4,4'-trichloro-5-bromo-2hydroxydiphenyl ether and 4,4'-dichloro-5-bromo-2-

hydroxyphenyl ether.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L23 ANSWER 4 OF 5 USPATFULL

ACCESSION NUMBER:

75:44791 USPATFULL

TITLE:

Detergent composition containing halogenated

2-acyloxy-diphenylethers

INVENTOR(S):

Model, Ernst, Basel, Switzerland

Bindier, Jakob, Riehen, Switzerland

PATENT ASSIGNEE(S):

Ciba-Geigy Corporation, Ardsley, NY, United States

(U.S. corporation)

KIND DATE NUMBER PATENT INFORMATION: US 3903007 19730208 19730208 APPLICATION INFO.: US 1973-330547 (5)

RELATED APPLN. INFO.:

Division of Ser. No. US 1970-102053, filed on 28 Dec 1970, now patented, Pat. No. US 3784684 which is a division of Ser. No. US 1967-660926, filed on 16 Aug 1967, now patented, Pat. No. US 3576843 which is a

continuation-in-part of Ser. No. US 1966-570742, filed on 8 Aug 1966, now patented, Pat. No. US 3506720 which is a continuation-in-part of Ser. No. US 1964-345080,

filed on 17 Feb 1964, now abandoned

DOCUMENT TYPE: FILE SEGMENT: Utility Granted

PRIMARY EXAMINER:

Padgett, Benjamin R.

ASSISTANT EXAMINER:

Miller, E. A.

NUMBER OF CLAIMS: EXEMPLARY CLAIM:

1

LINE COUNT:

1150

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Novel diesters of organic dicarboxylic acids and certain halogenated hydroxy-diphenylethers wherein the acyl radical is linked to the benzene nucleus of the diphenylether in 2-position to the ether bridge, which novel esters inhibit microbial growth and are suitable for disinfection and the like purposes, and especially those of the aforesaid diesters wherein at least one diphenyl ether moiety is substituted at least in 4-position and preferably in 4- and 4'-position by halogen, which diesters are particularly useful for the protection of cellulosic materials against bacteria and fungi, and for the treatment of infections of the intestinal system and the urinal tract of warm-blooded animals caused by pathogenic microorganisms; compositions containing the aforesaid novel esters in combination with a carrier therefor; and processes of using the aforesaid compositions for the described purposes.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L23 ANSWER 5 OF 5 USPATFULL

ACCESSION NUMBER:

74:14836 USPATFULL

TITLE:

PATENT

COMPOSITION OF HALOGENATED HYDROXY-DIPHENYL ETHERS

INVENTOR(S):

Model, Ernst, Basel, Switzerland Bindler, Jakob, Riehen, Switzerland

PATENT ASSIGNEE(S):

Ciba-Geigy Corporation, Ardsley, NY, United States

(U.S. corporation)

	NUMBER	KIND	DATE	
INFORMATION:	US 3800048		19740326	
THE THE	IIC 1070 7400C		10700000	

APPLICATION INFO.:

US 1970-74896 19700923 (5)

DISCLAIMER DATE:

19881221

RELATED APPLN. INFO.:

Continuation-in-part of Ser. No. US 1967-627603, filed on 3 Apr 1967, now patented, Pat. No. US 3629477 which is a continuation-in-part of Ser. No. US 1966-570742, filed on 8 Aug 1966, now patented, Pat. No. US 3506720 which is a continuation-in-part of Ser. No. US

which is a continuation-in-part of Ser. No. US 1964-345080, filed on 17 Feb 1964, now abandoned

DOCUMENT TYPE: FILE SEGMENT:

Utility Granted

PRIMARY EXAMINER:
ASSISTANT EXAMINER:

Meyers, Albert T. Waddell, Frederick E.

LEGAL REPRESENTATIVE: Jorda, Karl F., Spellman, Martin J.

NUMBER OF CLAIMS: LINE COUNT:

, 624

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB

Halogen-2-hydroxy-diphenyl ethers are useful in bactericidal compositions and method in the protection of organic materials.

Illustrative compounds are 2',4,4',5-tetrachloro-2-

hydroxydiphenyl ether, 4,4',5-trichloro-2-

hydroxydiphenyl ether, 2',4,4'-trichloro-5-bromo-2-hydroxydiphenyl ether and 4,4'-dichloro-5-bromo-2-

SUMM

## hydroxydiphenyl ether.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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=> d his
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     FILE 'USPATFULL' ENTERED AT 08:39:37 ON 30 JUN 2003
              1 S US5169631/PN
L1
L2
          26491 S ANTIMICROBIAL?
L3
              1 S L1 AND L2
L4
         131652 S BACTERIA?
L5
              1 S L3 AND L4
          19470 S SALICYLIC ACID?
L6
              0 S L5 AND L6
L7
L8
         154077 S AMIDE?
L9
             0 S L8 AND L5
             11 S SALICYLIC ACID-N-OCTYL AMIDE? OR SALICYLIC ACID-N-DECYL AMIDE
L10
              1 S L10 AND L2
L11
            384 S 2,4,4-TRICHLORO-2-HYDROXYDIPHENYL ETHER?
L12
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L13
            198 S L2 AND L12
L14
L15
            705 S SALICYLIC ACID(P) AMIDE?
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            213 S L4 AND L12
L17
            154 S L17 AND L2
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           1988 S ?HYDROXYDIPHENYL ETHER?
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L21
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L22
            221 S L21 AND L4
             5 S L15 AND L22
L23
=> s us6552214/pn
             1 US6552214/PN
=> s 124 and 123
             1 L24 AND L23
L25
=> d kwic
L25 ANSWER 1 OF 1 USPATFULL
TΙ
       Antimicrobial compound
PΙ
       US 6552214
                          B1
                               20030422
                                                                     <--
AB
       A compound comprises a blocked halogenated hydroxydiphenyl
       ether of the formula: ##STR1##
SUMM
       The present invention relates to an antimicrobial compound
       having improved resistance to conversion to a toxic compound or a
       dioxin-related compound.
       Model et al., U.S. Pat. No. 3,800,048 and Model et al., U.S. Pat. No.
SUMM
       3,904,696 disclose halogenated hydroxydiphenyl ethers
       for controlling microorganisms. Of these, IRGASAN.RTM. DP 300
       2,4,4'-dichloro-2'-hydroxydiphenyl ether produced by
       Ciba-Geigy Corporation, Ardsley, N.Y., is a well-known bacteriostat for
       industrial use. However at a temperature above about 200.degree..
SUMM
            . as in plastic fabrications, which may involve high temperature.
       As such, there is a long-felt yet unsolved need for an
```

antimicrobial compound that can be used in higher temperature fabrications without converting to a dioxin related compound.

be reacted with a compound that imparts a functional blocking moiety to

Accordingly, a halogenated hydroxydiphenyl ether can

prevent the conversion of the halogenated hydroxydiphenyl ether to dioxin related compounds at the higher temperatures typically used in plastic fabrication. In one embodiment, the compound comprises a blocked halogenated hydroxydiphenyl ether of the formula: ##STR3##

- SUMM The invention also relates to a process for the preparation of a blocked halogenated hydroxydiphenyl ether comprising reacting a halogenated hydroxydiphenyl ether of the formula (II): ##STR4##
- SUMM In another embodiment, the invention relates to an antimicrobial composition comprising a plastic and a blocked halogenated hydroxydiphenyl ether of the formula (I) and to a process for the preparation of a plastic comprising incorporating an effective amount of an antimicrobial blocked halogenated hydroxydiphenyl ether of the formula (I) into the plastic.
- SUMM In a preferred embodiment, an antimicrobial compound comprises a blocked halogenated hydroxydiphenyl ether of the formula: ##STR5##
- SUMM The compounds of formula (I) can be produced by reacting a halogenated hydroxydiphenyl ether of the formula: ##STR7##
- SUMM . . . reaction can be used to provide a blocking functionality. The acylation can convert the 2' hydroxyl group of the halogenated hydroxydiphenyl ether into an ester through the action of a carboxylic acid or carboxylic acid derivative. Preferred acylating agents include perfluoroacylimidazoles such. . .
- Another suitable blocking providing reaction is alkylation wherein the hydrogen of the 2' hydroxyl group of the halogenated hydroxydiphenyl ether is replaced with an aliphatic or aliphatic-aromatic group. Pentafluorobenzylbromide (PFBBr) is an example of a suitable alkylating compound.
- The diphenyl ethers can be used in combination with other antimicrobially active substances. For example, the compound can be used with halogenated salicylic acid alkyl amides and anilides, with halogenated diphenyl ureas, with halogenated benzoxazoles or benzoxazolones, with polychlorohydroxydiphenyl methanes, with halogendihydroxydiphenyl sulfides, with bactericidal 2-imino-imidazolidines. . . or tetrahydropyrimidines or with biocidal quaternary compounds or with certain dithiocarbamic acid derivatives such as tetramethyl thiuram disulphide. Various additional antimicrobial substances alone or in combination can be used with the diphenyl ethers to broaden the range of antimicrobial action and/or to provide a synergistic effect.
- SUMM The antimicrobial compound can be incorporated into a wide variety of plastics such as melt-extrudable thermoplastic polymers, which can be melt-processed to. . .
- SUMM The antimicrobial composition can be used with other suitable commercial plastic materials such as polyamide resins, acrylonitrile-butadiene-styrene (ABS) thermoplastic resins, polycarbonate resins, . .
- In this embodiment, the antimicrobial composition contains an effective amount of the antimicrobial compound. In this context, the term "effective amount" is that amount which exhibits desirable antimicrobial activity at a point of use. In various alternative embodiments, the antimicrobial composition can contain between about 0.001 and about 5%, preferably between about 0.005 and about 3% and more preferably between about 0.01 and about 1% by weight of the antimicrobial compound.
- DETD Antimicrobial activity of the modified IRGASAN.RTM.

  bacteriostat was compared to that of the unmodified material in a
  Kirby-Bauer type assay. Three. . . had been inoculated with

1.times.10.sup.6 cells of either E. coli or Pseudomonas aeruginosa. The ability of the compounds to inhibit **bacterial** growth was determined by measuring the diameter of the zone of inhibition surrounding the filter paper disks after 24 h. . .

DETD

. . . in applications differing from the types described herein. While the invention has been illustrated and described as embodied in an antimicrobial compound, it is not intended to be limited to the details shown, since various modifications and substitutions can be made without departing in any way from the spirit of the present invention. For example, additional antimicrobial substances or microbe abatement methodology can be used in concert with the present compound or process when needed. Although many. . . What is claimed is:

CLM Wha

- 1. A compound comprising a blocked halogenated hydroxydiphenyl ether of the formula: ##STR8## where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3 is hydrogen, chlorine or bromine.....
- 2. A compound comprising a blocked halogenated hydroxydiphenyl ether of the formula: ##STR9## where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3is hydrogen, chlorine or bromine, X.sub.4. . .
- 4. A process for the preparation of a blocked halogenated hydroxydiphenyl ether, comprising reacting a halogenated hydroxydiphenyl ether with a blocking functionality providing compound, said halogenated hydroxydiphenyl ether having the formula: ##STR10## where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3 is hydrogen, chlorine or bromine, . . .
- . claim 4, wherein said blocking functionality providing compound reacts with the --OH of compound (II) to provide a blocked halogenated hydroxydiphenyl ether of the formula: ##STR11## where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3 is hydrogen, chlorine or bromine, . . .
- nydrogen, chlorine or bromine,. . .

  13. An antimicrobial composition, comprising a plastic and a blocked halogenated hydroxydiphenyl ether of the formula: ##STR12## where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3 is hydrogen, chlorine or bromine, . . .

  14. The antimicrobial composition of claim 13, comprising between about 0.001 and about 5% by weight of the antimicrobial compound.
- 15. The antimicrobial composition of claim 13, comprising between 0.005 and about 3% by weight of the antimicrobial compound.
- 16. The antimicrobial composition of claim 13, comprising between 0.01 and about 1% by weight of the antimicrobial compound.
- 17. The **antimicrobial** composition of claim 13, wherein the plastic is a melt-extrudable thermoplastic polymer.
- 18. The antimicrobial composition of claim 13, wherein the plastic is a thermosetting polymer or thermoplastic polymer.
- 19. The antimicrobial composition of claim 13, wherein the plastic is a polyolefin.
- 20. The antimicrobial composition of claim 13, wherein the plastic is polyethylene, polypropylene, poly(1-butene), poly(2-butene), poly(1-pentene), poly(2-pentene), poly(3-methyl-1-pentene), poly(4-methyl-1-1pentene), 1,2-poly-1,3-butadiene, 1,4-poly-1,3-

- butadiene, polyisoprene, polychloroprene,. . . 21. The **antimicrobial** composition of claim 13, wherein the plastic is a blend of polyolefins or copolymers.
- 22. The antimicrobial composition of claim 13, wherein the plastic is a polycarbonate.
- 23. The **antimicrobial** composition of claim 13 in the form of a pellet or powder.
- 24. The **antimicrobial** composition of claim 13, wherein R is trimethylsilyl, butyldimethylsilyl, or tert-butyldimethylsilyl.
- 25. The antimicrobial composition of claim 13, wherein R is an acyl group that inhibits the formation of an ether linkage with X.sub.3.
- 26. The antimicrobial composition of claim 13, wherein R is pentafluorobenzyl.
- 27. The antimicrobial composition of claim 13, wherein said blocked halogenated hydroxydiphenyl ether 2,4,4'-tricloro-2'-trimethylsilyloxy diphenyl ether.
- 28. A process for the preparation of an antimicrobial plastic, comprising incorporating into said plastic, an effective amount of a blocked halogenated hydroxydiphenyl ether of the formula: ##STR13## where X.sub.1 is a halogen, X.sub.2 is chlorine or bromine, X.sub.3 is hydrogen, chlorine or bromine, . . .